

## TWO NEW SPECIES OF *HERCOSTOMUS* FROM CHINA (DIPTERA: DOLICHOPODIDAE)<sup>1</sup>

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**ABSTRACT:** Two species from China are described as new to science: *Hercostomus* (*Gymnopternus*) *huangi* sp. nov. and *Hercostomus* (*Hercostomus*) *maoershanensis* sp. nov. One new species-group, *Hercostomus* (*Gymnopternus*) *setifacies*-group, is proposed. Keys are provided for the species of the *setifacies*-group and the *longicercus*-group from China, and the geographic distribution of each species group is discussed. One new combination, *Hercostomus* (*Gymnopternus*) *zhejiangensis* (Yang, 1997) comb. nov. is created.

**KEY WORDS:** Diptera, Dolichopodidae, *Hercostomus*, China, new species.

The genus *Hercostomus* is the largest and most diversified genus in the Dolichopodidae with about 500 known species worldwide. There were 28 known species from China before 1995, of which only 11 species were recorded from continental China (Dyde 1975, Negrobov 1991). Since 1995, 218 species of *Hercostomus* have been added to the fauna of China, mainly based on the work of Wei (1997), Yang and Grootaert (1999), Yang and Saigusa (1999, 2000, 2001a-d, 2002), Yang and Yang (1995), Zhang and Yang (2003). Up to now, there are 246 known species in China.

In the present paper, two species are described as new to science. One new species-group, *H. (G.) setifacies*-group, is proposed. Keys are provided for the species of the *setifacies*-group and the *longicercus*-group from China. A geographic distribution map for each species group is also presented. One new combination *Hercostomus* (*Gymnopternus*) *zhejiangensis* (Yang, 1997) comb. nov. is created for *Phalacrosona zhejiangensis* Yang, 1997.

The following abbreviations are used: acr-acrostichal, ad-anterodorsal, apv-apicoventral, av-anteroventral, dc-dorsocentral, LI-fore leg, LII-mid leg, LIII-hind leg, pd-posterodorsal, pv-posteroventral, v-ventral.

### *Hercostomus* (*Gymnopternus*) *setifacies* group

**Diagnosis:** Postocular bristles black. Antenna black; first flagellomere elongated, at least 2.0 times longer than wide. Clypeus in both sexes with one pair of black strong bristles. Cercus long and thick, longer than epandrium.

This group includes the following 3 species: *H. (G.) huangi* sp. nov., *H. (G.) zonalis* Yang, Yang and Li and *H. (G.) wuyangensis* Wei. The geographical distribution of these species is shown on Figure 11.

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### Key to the species of the *Hercostomus (Gymnopternus) setifacies* group from China

1. Cercus nearly straight. Yunnan ..... *H. (G.) huangi* sp. n.  
Cercus rather thick, somewhat swollen and rounded apically.....2
2. Fore and mid femora yellow. Guizhou ..... *H. (G.) wuyangensis* Wei  
All femora black with dark yellow to yellow tips. Shaanxi, Sichuan, Henan, Guangdong .....  
..... *H. (G.) zonalis* Yang, Yang and Li

### *Hercostomus (Gymnopternus) huangi* Zhang, Yang and Masunaga, NEW SPECIES (Figs 1-5)

**Diagnosis:** Postocular bristles black. Antenna black; first flagellomere 2.0 times longer than wide. Cercus nearly straight and obtuse apically.

**Description:** Male. Body length 2.7-2.8 mm, wing length 2.4-2.5 mm. Head metallic green with pale gray pollen. Face narrowing downward, narrower than first flagellomere. Hairs and bristles on head black; postocular bristles (including postero-ventral hairs) black. Antenna (Fig 2) black; first flagellomere 2.0 times longer than wide, somewhat acute apically; arista black, minutely pubescent, with basal segment 0.6 times as long as apical segment. Proboscis dark yellow with black hairs; palpus dark yellow with black hairs and 1 black apical bristle. Clypeus with one pair of strong, black bristles.

Thorax metallic green with pale gray pollen. Hairs and bristles on thorax black; 6 strong dc, 8 paired ac; scutellum with 2 pairs of bristles (basal pair short and hair-like) and several short marginal hairs. Propleuron with 1 black bristle on lower portion. Legs yellow; fore coxa yellow, mid and hind coxae brownish to dark brown; hind femur with black tip; hind tibia with dark brown to black tip; fore tarsus from tip of tarsomere 1 onward brown, mid tarsus from tip of tarsomere 1 onward black, hind tarsus black. Hairs and bristles on legs black; mid and hind coxae with 1 outer bristle. Mid and hind femora each with 1 preapical bristle. Fore tibia with 1 ad and 2 pd, apically with 2 short bristles; mid tibia with 3 ad, 2 pd and 1 av, apically with 3 bristles; hind tibia with 3 ad, 4 pd and 1 av, apically with 4 bristles. Relative lengths of tibia and 5 tarsomeres L1 1.0 : 0.65 : 0.25 : 0.2 : 0.15 : 0.12; LII 1.55 : 0.65 : 0.5 : 0.45 : 0.25 : 0.2; LIII 1.9 : 0.5 : 0.65 : 0.5 : 0.35 : 0.2. Wing (Fig 1) hyaline, tinged with grayish; veins brown,  $R_{4+5}$  and M parallel apically; CuAx ratio (length of mcu/length of CuA distal section) 0.3. Squama pale yellow with black hairs. Halter pale yellow.

Abdomen dark metallic green with pale gray pollen. Hairs and bristles on abdomen black. Male genitalia (Fig 3-5): Epandrium distinctly longer than wide, with long finger-like lateral lobe bearing 3 long apical bristles; cercus nearly straight and obtuse apically; hypandrium acute apically in ventral view.

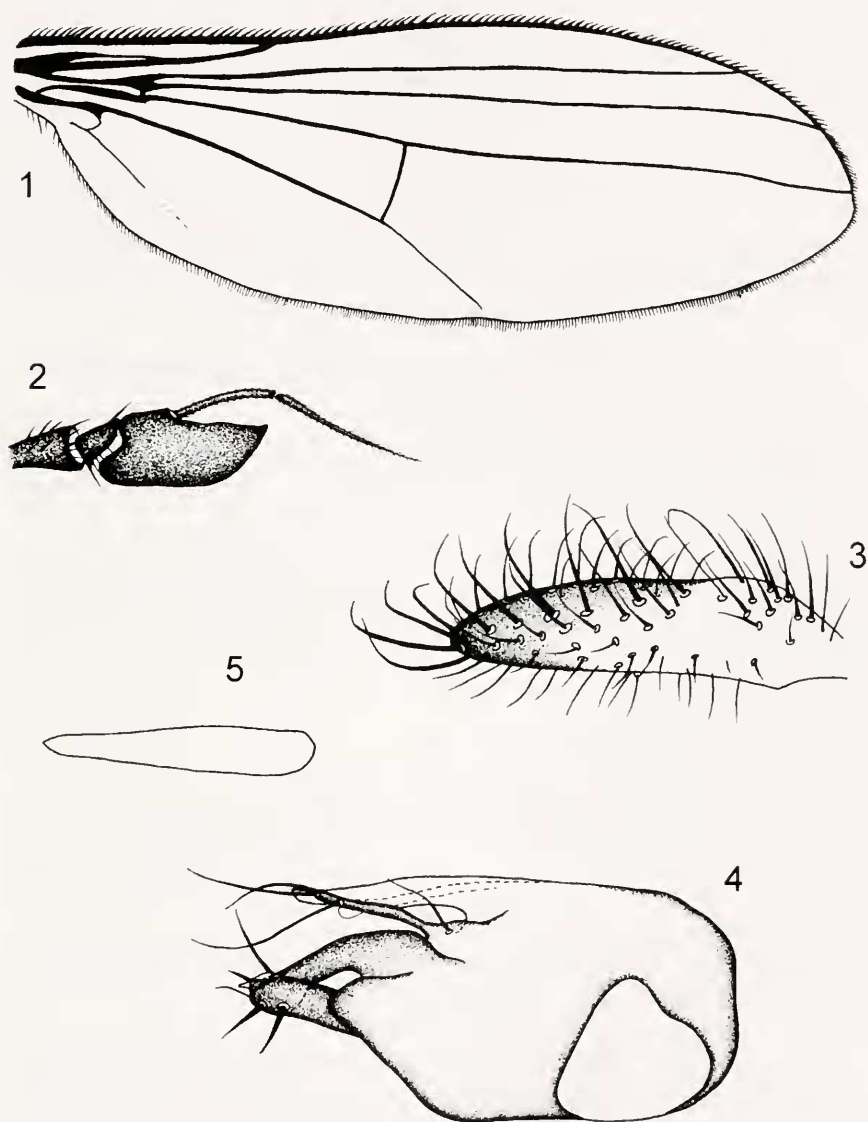
**Female:** Unknown.

**Holotype:** Male, Yunnan: Xishuangbanna, Jinghong (300 m, yellow pan trap), 2002. IV. 12, Wenquan Zhen, deposited in the insect collection of China Agricultural University, Beijing.

**Distribution:** China (Yunnan).

**Etymology:** The species named after Prof. Dawei Huang (Institute of Zoology, Beijing).

**Remarks:** The new species is similar to *H. setifacies* Stackelberg, but may be separated from the latter by the femora being yellow except the tip of the hind femur is black, and the cercus with an obtuse apex. In *setifacies*, the femora are black except the tips of the fore and mid femora are yellow, and the cercus has an acute apex (Stackelberg, 1934).



*Hercostomus (Gymnopternus) huangi* sp. nov.

Figures 1-5. *Hercostomus (Gymnopternus) huangi* sp. nov. 1. wing; 2. antenna, lateral view; 3. cercus, lateral view; 4. male genitalia (excluding cercus), lateral view; 5. hypandrium, ventral view.

### *Hercostomus (Hercostomus) longicercus* group

**Diagnosis:** Antenna black; first flagellomere rather small, as long as wide, arista with very short basal segment (0.2 times as long as apical segment). acr biseriate, uniseriate or absent. Cercus slender and strap-like, usually longer than epandrium.

The group includes the following 8 species: *H. (H.) clavatus* Wei, *H. (H.) ebaeus* Wei, *H. (H.) filiformis* Yang and Saigusa, *H. (H.) longicercus* Yang and Yang, *H. (H.) modificatus* Yang and Saigusa, *H. (H.) pilifacies* Yang and Saigusa, *H. (H.) pilicercus* Yang and Saigusa, *H. (H.) maoershanensis* sp. nov. The geographical distribution of these species is shown on Figure 12.

#### Key to the species of the *Hercostomus (Hercostomus) longicercus* group from China

- |   |   |
|---|---|
| 1. First flagellomere somewhat acute apically .....   | 2   |
| First flagellomere with acute upper and lower apical corners; face with 2-4 black hairs on lower portion (just above clypeus). Yunnan ..... | <i>H. (H.) pilifacies</i> Yang and Saigusa  |
| 2. Acr absent .....   | 3   |
| Acr present .....   | 4   |
| 3. Mid coxa blackish, hind coxa yellow. Yunnan .....  | <i>H. (H.) longicercus</i> Yang and Yang    |
| Mid and hind coxae black. Guangxi .....   | <i>H. (H.) maoershanensis</i> sp. n.        |
| 4. Acr uniseriate .....   | 5   |
| Acr biseriate .....   | 7   |
| 5. Femora entirely yellow .....   | 6   |
| Femora black with yellow tips. Shaanxi, Guizhou .....   | <i>H. (H.) clavatus</i> Wei                 |
| 6. Cercus with swollen base. Guizhou .....  | <i>H. (H.) ebaeus</i> Wei                   |
| Cercus without swollen base. Yunnan .....   | <i>H. (H.) filiformis</i> Yang and Saigusa  |
| 7. Face with pale hairs on lower portion; coxae yellow. Yunnan .....  |   |
| .....   | <i>H. (H.) pilicercus</i> Yang and Saigusa  |
| Face without pale hairs; mid and hind coxae black. Shaanxi .....  |   |
| .....   | <i>H. (H.) modificatus</i> Yang and Saigusa |

### *Hercostomus (Hercostomus) maoershanensis* Zhang, Yang and Masunaga, NEW SPECIES

(Figs 6-10)

**Diagnosis:** Mid and lower postocular bristles (including postero-ventral hairs) yellow. Antenna black; first flagellomere 1.3 times longer than wide. acr absent. Fore coxa brownish black, mid and hind coxae black. CuAx ratio 1.0.

**Description:** Male. Body length 2.8 mm, wing length 3.0 mm. Head metallic green with pale gray pollen. Hairs and bristles on head black; mid and lower postocular bristles (including postero-ventral hairs) yellow. Antenna (Fig 7) black; first flagellomere 1.3 times longer than wide, somewhat obtuse apically; arista black, nearly bare, with basal segment 0.23 times as long as apical segment. Proboscis black with black hairs; palpus black with black hairs and 1 black apical bristle.

Thorax dark metallic green with pale gray pollen. Hairs and bristles on thorax black; 6 strong dc, acr absent; scutellum with 2 pairs of bristles (lateral pair short and hair-like) and several short marginal hairs. Propleuron with 1 black bristle on lower portion. Legs yellow; fore coxa brownish black,

mid and hind coxae black; fore femur blackish, mid and hind femora yellow with extremely black tip; tibia yellow with extremely black base and tips; fore tarsus dark brown to black, mid tarsus from tip of tarsomere 1 onward black, hind tarsus entirely black. Hairs and bristles on legs black; mid and hind coxae with 1 outer bristle. Mid and hind femora each with 1 preapical bristle. Fore tibia with 2 pd, apically with 2 short bristles and 1 black thin apv (about 0.4 times as long as fore tarsomere 1); mid tibia with 3 ad, 2 pd and 1 av, apically with 4 bristles; hind tibia with 3 ad, 3 pd and 1 av, apically with 3 bristles. Hind tarsomere 1 with 1 v at base. Relative lengths of tibia and 5 tarsomeres LI 1.0 : 0.6 : 0.25 : 0.2 : 0.15 : 0.15; LII 1.55 : 0.85 : 0.5 : 0.4 : 0.5 : 0.2; LIII 2.0 : 0.53 : 0.7 : 0.5 : 0.3 : 0.25. Wing (Fig 6) hyaline, tinged with grayish; veins black, R4+5 and M parallel apically; CuAx ratio 1.0. Squama pale yellow with black hairs. Halter yellow.

Abdomen dark metallic green with pale gray pollen. Hairs and bristles on abdomen black. Male genitalia (Fig 8-10): Epandrium distinctly longer than wide, narrowing toward apex, with slightly curved lateral lobe bearing 2 long bristles and 1 short apical bristle; cercus slightly shorter than epandrium, and with long ventral bristles and hairs; hypandrium acute apically in ventral view. Female. Body length 2.8-3.2 mm, wing length 3.0-3.2 mm. Similar to male.

**Holotype:** Male, Guangxi: Maoershan National Nature Reserve (2100m, light trap), 2003. VII. 5, Shuwen An, deposited in the insect collection of China Agricultural University, Beijing. **Paratypes:** 1 ♂, Guangxi: Maoershan National Nature Reserve (2100m, light trap), 2003. VII. 5, Shuwen An, deposited in the insect collection of China Agricultural University, Beijing; 3 ♂ 4 ♀. Guangxi: Maoershan National Nature Reserve, Sanjiangyuan (1900 m, light trap), 2003 VI 30, Xingyue Liu, deposited in the insect collection of China Agricultural University, Beijing.

**Distribution:** China (Guangxi).

**Etymology:** The specific name refers to the type locality, Maoershan.

**Remarks.** The new species is similar to *H. longicercus* Yang and Yang by having no acr, but may be separated from the latter by the black mid and hind coxae. In *H. longicercus*, the mid coxa is blackish, and the hind coxa is yellow (Yang and Yang, 1995).

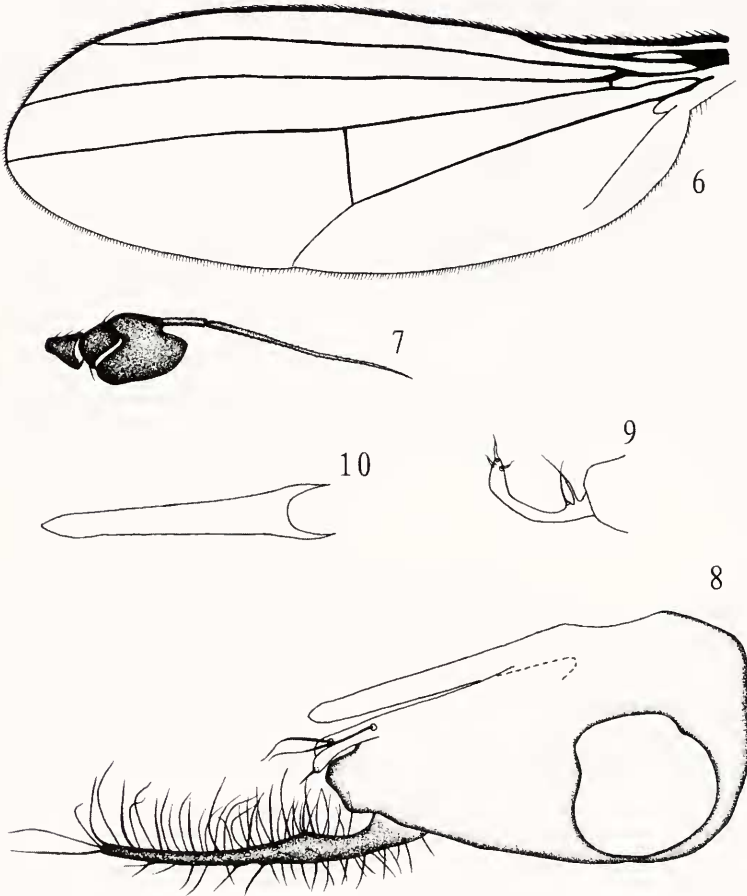
## GENERAL DISCUSSION

For the species of *Hercostomus* (*Gymnopternus*) *setifacies*-group, *H. (G.) huangi* is distributed in South China Region (Southern Yunnan Subregion: Yunnan, Xishuangbanna), *H. (G.) wuyangensis* Wei is scattered in Central China Region (Western mountain Subregion: Guizhou, Zhenyuan), *H. (G.) zonalis* is widely distributed in both Palaearctic part and Oriental part of China that including North China Region (Huang-hai Plains Subregion: Henan: Songxian, Luan-chuan and Xixia), Central China Region (East hilly plain Subregion: Henan, Luoshan; Western mountain Subregion: Sichuan, Emeishan), South China Region (Min-Guang Subregion: Guangdong: Nanling and Shimentai).

The eight species of *Hercostomus* (*Hercostomus*) *longicercus*-group both are distributed in the Oriental part of China. *H. (H.) longicercus* Yang and Yang is distributed in Central China Region (East hilly plain Subregion: Zhejiang, Baishanzu); *H. (H.) clavatus* Wei, *H. (H.) ebaeus* Wei, *H. (H.) modificatus* Yang and Saigusa and *H. (H.) maoershanensis* sp. nov. are distributed in Central China Region (Western mountain Subregion: Guizhou, Fanjingshan; Shaanxi, Zuoshui; Guangxi, Maoershan); *H. (H.) filiformis* Yang and Saigusa, *H. (H.) pilicercus* Yang and Saigusa and *H. (H.) pilifacies* Yang and Saigusa are scattered in South China Region (Southern Yunnan Subregion: Yunnan).

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*Hercostomus (Hercostomus) maoershanensis* sp. nov.

Figures 6-10. *Hercostomus (Hercostomus) maoershanensis* sp. nov. 6. wing; 7. antenna, lateral view; 8. male genitalia, lateral view; 9. genital apical processes, lateral view; 10. hypandrium, ventral view.

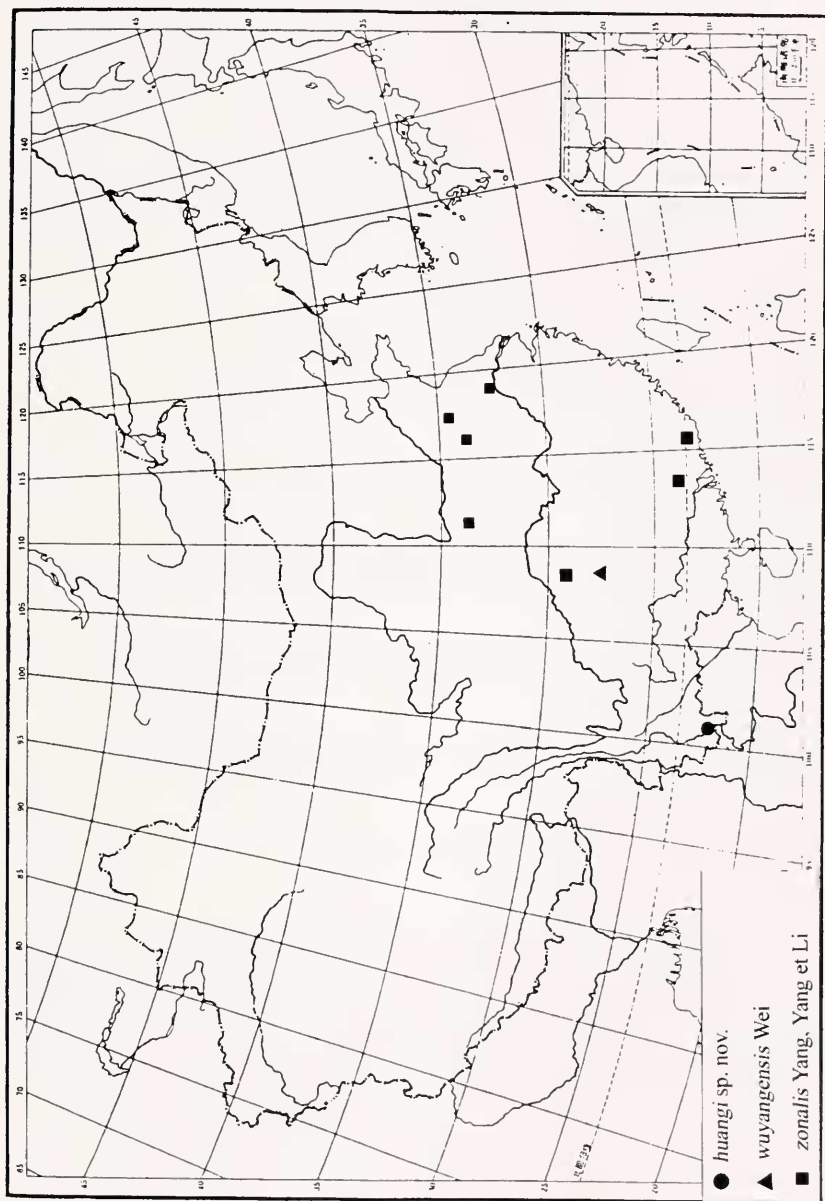


Figure 11. Distribution of *Hercostomus (Gymnopternus) setifacies*-group in China.

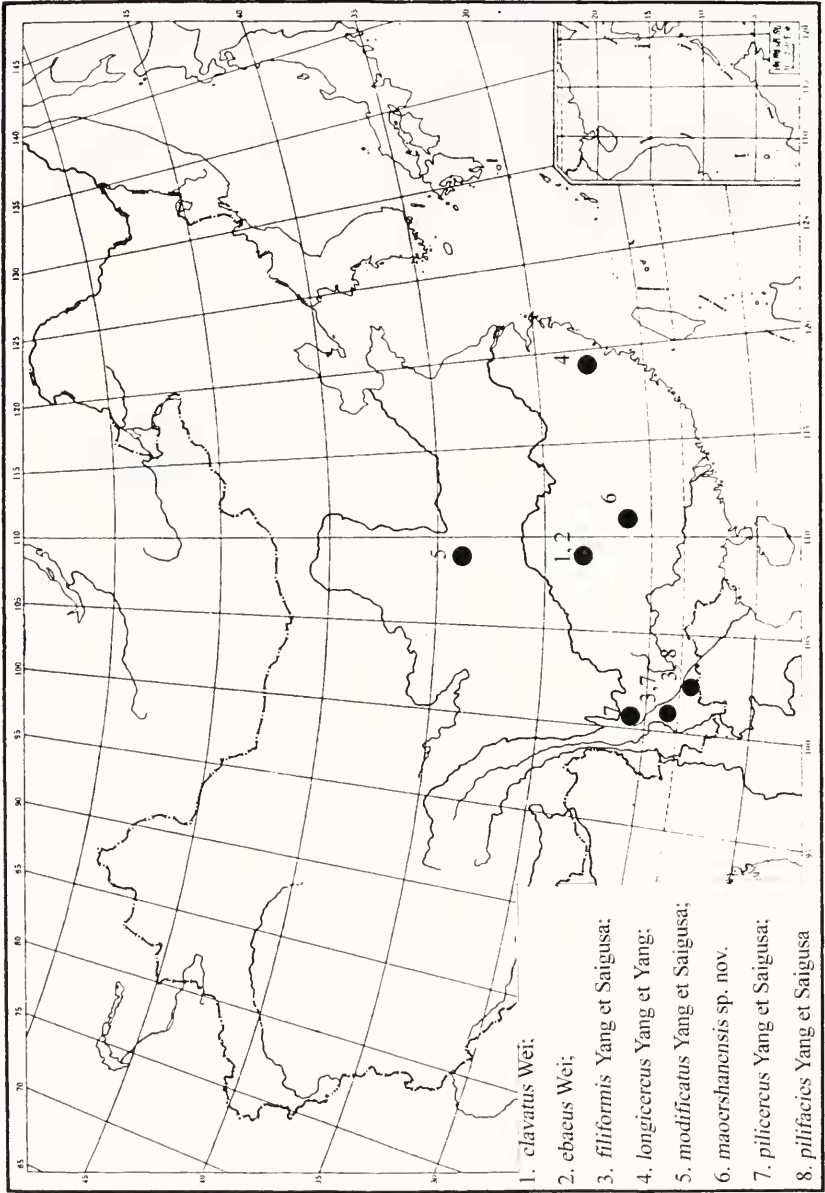


Figure 12. Distribution of *Hercostomus (Hercostomus) longicercus*-group in China.



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